

EXHIBIT 174

REDACTED

From: Eisar Lipkovitz [REDACTED]
To: Jonathan Bellack [REDACTED]
Sent: Fri, 21 Jul 2017 16:55:04 -0700
Subject: Re: Display RevForce
Cc: [REDACTED]

[REDACTED] Aparna Pappu

[REDACTED] Brad Bender

[REDACTED] Jessica

[REDACTED] Mok

[REDACTED] Nirmal Jayaram

The more I think about it I agree this is purely a sell side discussion. Buy side will continue to path we laid out in the past to deal with multiple calls and non clean auctions. While it's legitimate for pubs to use different floors for different SSPs and maybe there are some cases where the benefit outweigh the cost, it doesn't mean we need to entertain this. I am willing to lose access and pick a war on this one.

We could implement the feature where AdX get to compete against the winner even if our floor wasn't met, thus increasing our and the publisher revenue but this will be essentially endorsing a bad policy and also removing one of the obvious negative consequences. I rather keep that one in the back pocket as plan B.

As I said we should revisit the single call position on Adx and then focus on plan A, i.e. refuse to buy if there are multiple calls and floors aren't the same. Doing it in Jedi is easy where in HB it's nearly impossible to enforce, however DBM has access to some of the data and I'd like to believe we can design Poirot like mechanisms to detect Pubs who do something like that and stop buying (GDN+DBM) on them. Whether we can lose inventory for DBM is a good discussion to have, I think an argument can be made the current setup isn't buyer friendly so we need to take a stance on behalf of our advertisers. However on GDN we can certainly do what we want.

On Fri, Jul 21, 2017 at 3:29 PM, Jonathan Bellack [REDACTED] wrote:

Eisar: yes that is my use of soft floor terminology. I believe most publishers probably do not care very much about which SSP sits at which price. They just believe that low floors leave a lot of money from high bids on the table. Since programmatic buyers really dislike soft floors, no one SSP has offered a complete solution, so the only way for pubs to implement this strategy is by putting different SSPs at different floors.

You have an excellent point that pubs do not know how much they are leaving on the table with this strategy, if we could show them the opportunity cost of doing this to AdX I bet it would change their behavior.

[REDACTED] raises an interesting point that some pubs are raising AdX floors on purpose to make us work harder. That means pubs do think of us differently, after all we do have differentiated demand with GDN. They must have a belief (or evidence) that they get GDN to pay higher when they push up the floors. This could be due to the gap between first & second price on remarketing, or they could be abusing Bernanke just like the apps were. Or, since Index Exchange is generally 10% revshare not 20%, they only want to call AdX when we are paying so much more to be worth the bigger cut. Or, just generally thinking Google is rich and so should be forced to pay more.

One possible remedy to this could be the long-debated unbundling of our demand, like Sagnik's point about one high CPM one high fill call. We are unique in having a high-fill low-CPM contextual business, but that makes our blended RPMs look lower, and there is no good way in our platform for a pub to say "I want to get the most from Google's high-priced demand, but if nobody else will buy it I would rather have Google contextual demand at 25 cents than nothing." One could envision a product feature that enables this, like an AdX last chance auction.

I do believe that multiple calls actually work and make the publisher more money in the short term, given current buyer acceptance of being called multiple times with different floors. In the long run, this is probably bad for pubs, because a smart buyer is going to figure out how often they can pass on the high floor calls, and buy the same impression for half price through another SSP. In fact, it is plausible that some of the decline in AdX buyer spend could be due to this effect, since we know the buyers are learning that inventory is available in lots of places now, and that it is easier to buy from other SSPs with more relaxed policies.

We may want to split the problem in two, thinking about changing the overall market dynamics separately from how DBM/AwBid should behave given the current market dynamics.

On Jul 21, 2017 2:10 PM, "[REDACTED]" wrote:

Agree with [REDACTED] on the multiple calls for AdMob part. For inbound ideally we want one high CPM and one high fill option (hence $N = 2$). If pushed I can argue/agree for $N = 3$ just to be competitive and compromise to have a hybrid option but anything higher than that seems counter productive and set up for being gamed.

On Fri, Jul 21, 2017 at 11:01 AM, [REDACTED] wrote:

To be clear, multiple calls with a cap on Admob was very much a compromise position. I can talk myself into $N=2$ and keep my principles... for $N>2$ it's all pragmatic compromise from my POV...

On Jul 21, 2017 10:37 AM, "Eisar Lipkovitz" [REDACTED] wrote:

Jonathan,

Just to make sure I understand your terminology, by soft floors you mean a floor that is flexible in so far that if no one bites we try again with a different price?

If so and we focus on the conversation on parallel calls (EB, HB or whatnot), then the question is why does the pub want different soft floors for different SSPs? Maybe it does help in some cases but clearly has the failure mode where one SSP gets a lower floor which they clear, another one has a higher floor to deal with but they would have been the first SSP's price. Maybe the unclear (to me yet) benefits of this setup outweigh the losses BUT if you couple this discussion with a probably strong preference for simplicity/transparency/symmetry which most SSPs/Network would expect, why not outright ban per SSP soft floors? Obviously we can only decide what to do with AdX but we could impose things in Jedi/EB and we can team up with a bunch of more logical SSP/Networks (amzn, fbm, crto, etc..).

One other think to consider is our reluctance in AdX for multiple calls? I actually ended up liking the AdMob position, essentially agreeing there is some legitimate use cases for soft floors but there has to be a cap. Two or Three seems far better than One, because the latter forces bad behavior

On Fri, Jul 21, 2017 at 8:41 AM, Jonathan Bellack <[REDACTED]> wrote:

I still think this is about soft flooring, taking multiple bites to try to get the most possible. Waterfall vs parallel does not matter, because the effect is the same either way, you are discovering if you can clear at \$5, \$2, \$1 whatever. In fact, parallel should outperform waterfall, because you do not have the latency impact of making one call after another. We probably need to address HB for this one, too. Pubs want to make more money overall, but SSPs want to win more. If we come up with something for EB that hurts SSPs relative to HB, they could just pull out of EB.

With that caveat, I like [REDACTED]'s idea. If a publisher is truly interested in more revenue, they should want to take the AdX offer. It has some risks though. With EB, exchanges may feel this kind of gives us last look back and object, though I like the idea of giving them a way to participate in that 2nd bite option as well if pubs allow them. Also, do we have any worry that it will encourage worse behavior? If a pub knows they get two bites at the AdX apple, would they increase the AdX floor even higher?

Also, could we start showing pubs opportunity cost of these floors? We should be able to tell them when AdX could have paid more than HB or EB, if they had just relaxed the floor.

On the buy side, I wonder if there is value lossto us, even when buying cheaper on the other exchange. [REDACTED]

On Jul 21, 2017 10:06 AM, "Eisar Lipkovitz" [REDACTED] wrote:

I'm still struggling with this idea that each SSP/Exchange is expected to support this idea of Floors irrespective of how they are called.

Ultimately you either do something like HB (aka client side auction) or run mediation/waterfall. The latter can be done by a platform or home grown solution. In either case each demand source/SSP can decide not to fill for any reason. Sounds like this floor mechanism is designed around the notion of daisychain/waterfall, where the demand source doesn't return a price but rather yes/no.

If the interface was changed into just give me a price and I (publisher) can decide what to do, we'd be in a better place. That still leaves the case where the floor is used for extracting value from advertisers, i.e. trying to create a reserve price, though this can be an input to the RTB call. Mechanism of communicating it to the SSP aside, the key insight from this discussion is that some pubs want to send a different floor to different SSPs.

In a daisy chain setup, you only call one SSP at the time so there is no difference if the floor is specific to the SSP or one floor per call.

That leaves us with a case where the "platform" sends multiple parallel calls to multiple SSPs and uses different floors for each one of them. Why?

On Fri, Jul 21, 2017 at 6:06 AM [REDACTED] wrote:

On Thu, Jul 20, 2017 at 9:42 PM, Eisar Lipkovitz [REDACTED] wrote:

On Thu, Jul 20, 2017 at 6:05 PM, [REDACTED] wrote:

We suspected higher ADX floors is what was happening both for HB and for Jedi, but without the Jedi data we didn't have a way to conclusively prove it.

Now that we know for sure, there are several things we can do about it. Early in the

design of Jedi we talked about Jedi Floors [REDACTED] that would override ADX and apply to everyone, but we decided not to do it right away because of complexity for publishers and that it would add a barrier to adoption. It is something that we will revisit.

I need to spend more time reviewing it but sounds like a good phase 2 idea to explore now

[REDACTED] also has an idea that would make publishers strictly more money and solve this issue at least for Jedi --- on a per query basis, if any bid from an exchange is lower than the ADX floor, then we would ignore the ADX floor and let ADX compete. Unlike last look that only benefits us, this makes the publisher strictly more money and can be viewed as an optimization feature for them.

I like it, we can probably do it for all SSPs if they return their price instead of just saying No to the floor they had to beat.

We can do that if they also send the floor they had to beat since we don't know what it was. If everyone just sends their best bid without us know the floor that applied, we might clear below anyone's floor which would be hard to defend to publishers. That is a bit of a weakness for this idea, because if the other exchanges lie, we might incorrectly lower our floor as well. But on the other hand, this at least protect us from those exchanges and in any case it is the other exchange that is violating the wishes of the publisher. With Jedi floors, we could be sure what the publishers intended and enforce it.

Beyond that, for non-Jedi, we have TargetCPM and Managed CPM that tries to get the publisher to give us more control over the floors (either total control, or at least hitting an average rather than an absolute number. With our opportunities and experiments framework, we are also recommending lower floors.

Eisar, I think your fairness point is right, but the issue is that it is the SSP controls and not the DFP controls that are the problem. DFP isn't setting a floor for anyone (including ADX). Each SSP, including ADX, has controls/rules/floors that the publisher can set and these rules are important to them for a variety of reasons -- an example is a publisher not trusting a particular buyer very much, so they only want higher quality (higher priced) demand from them where others they will take whatever. The fact that each SSP has different controls lets publishers treat them differently. This is where having Jedi Floors that override ADX could at least help us as long as publishers don't get too aggressive and cause other exchanges to stop buying.

I see, the override might be the medium term solution but we should think hard if this concept where you manage inside the SSP the floors make sense any more. We will need to have the same conversation with demand product and I just find it complex and a vestige of the past.

You should ask yourself whether FB or Amazon has such feature and we should consider unilaterally deprecating the feature and potentially lose some AdX pubs.

Yes, this is a good question. I think publishers are always going to insist on rules somewhere, but doing at least pricing at the ad server level vs ssp may be better.

I also think the comment about first price is right -- with first price there can still be discrimination against buyers with higher floors or blocks.

In terms of why publishers set a higher floor for ADX, one of the patterns we suspected from waterfall times is high floor in ADX through the DFP backfill ADX account, and then call us again through an ADX direct account (or adsense) with low/no floor to get around the two calls limitation. That is, try to get ADX to pay a lot and then as a last resort get us to fill at a low price.

Yeah, that would explain my observation about losing out on GDN and buyer of last resort.

Would be interesting to analyze if majority of our wins at the lower CPM price range come from this bottom feeding.

We should figure out how to defend against it.

On Thu, Jul 20, 2017 at 8:40 PM Eisar Lipkovitz [REDACTED] wrote:

It was a good discussion, I am not convinced that moving the AdX auction to 1st price is the right answer. Even if it is this sounds like a very big change we need to analyze carefully and roll out slowly, so let's agree it's a very long term solution if at all.

Until then, I am worried that inadvertently our platform business (the ability to make ad decisioning, mediate through floors and/or reserve price management/optimization, EDA or EB) is indeed helping us to get access BUT it comes at a cost for our share.

Something feels very wrong about this picture and I think we should look at solutions both on the buy and the sell side.

Starting with the latter, I think we need to check whether this setup actually yields in higher RPM to the Publisher and whether the defaults makes sense. There was a supposition

the setup some of these pubs created is intentional and rational and I worry some of it is accidental and goes against us.

As far as what DBM should do, I worry that my toy example things are working as expected from the advertiser standpoint, we got them better prices by buying through SSPs with lower floors.

So when I go to first principles and observe the publishers getting value from slicing demand via multiple calls done in parallel via different pipes, I am left asking why should AdX be always the high floor?

My supposition is that if the publisher rotated those floors across different SSPs in EB (and HB) they should generally get similar outcome. Let's even pretend that all SSPs are equal in terms of auction rules and none offer unique demand.

We can actually abstract DBM (or GDN) out of the equation and treat it as like a 3 party system (sellers, middleman/exchange/ssp, buyers). We bundled the first 2 with DRX, but the fact still remain if the platform (DFP) is an agent of the seller AND it decides to "discriminate" against a particular SSP due to laziness (picking them to be at the top of the mediation/floor chain), that SSP should rebel. It's not that different than the outcry other SSPs had due to AdX having last look which we removed in EB.

As such I'm converging (thinking out loud) on this idea that AdX should push back on DFP and ask to fix this injustice by doing a rotation of floors or at least incorporating this concept.

Maybe someone has a different solution that attacks the problem from a different angle but I think I was trying to address it linearly hitting the root cause.

In a sense [REDACTED]'s idea of moving to 1st price auction comes from the same place, i.e. the SSP reacting to the Platform floors by removing the incentive to set them as the SSP revolts and realize that 2nd price creates this mechanism that cause loss of market share.

On Thu, Jul 20, 2017 at 5:01 PM, [REDACTED] wrote:

[REDACTED], yes we also looked into DBM' bids through Adx and EB channels, and bids are roughly compatible.

DFP and Adx publishers are highly overlapped. For those publishers that use both, DFP third-party floor is used to protect reservations and trade off serving either DFP ad or Adx ad. Adx rules are separate pricing controls applied only to adx ads. The issue here is DBM subject to only DFP third party for EB bids, and subject to additional Adx rule floor and Reserve Price Optimization prices for Adx bids. It's not publishers set third party price and Adx rule prices differently on purpose (they serve different goals), it's our product design that chooses to subject EB with fewer

floors to increase EB adoption initially.

On Thu, Jul 20, 2017, 7:46 PM [REDACTED] wrote:

The Jedi analysis is interesting. This is what I suspected, since the DBM behavior is really the same independent of channel.

I was under the impression that DFP pubs have dfp controls (i.e. 3P reserve floors) and they don't enforce additional adx floors. Why do these Adx floors exist? Are they trying to use Adx as a low fill high CPM source? (Seems counter intuitive as I would have expected the reverse)

On Wed, Jul 19, 2017 at 4:47 PM, [REDACTED] wrote:

Hi everyone,

Sharing the agenda for Thursday's Display RevForce:

* Android Lockbox Time Spent Analysis

* Jedi Analysis

* AMP Pageview RPM Analysis

* Q3 Staples

Note that we will be in MTV-CL5-3-Reno Aces this week. You can also join on [REDACTED]

[REDACTED] Finally, a link to the WIP is below.

See you then!

[REDACTED]

Display RevForce

Bi-weekly Display RevForce meeting.

When Thu Jul 20, 2017 12pm – 12:50pm Pacific Time

Where MTV-CL2-4-Warwick Long Bay (4) GVC, MTV-CL5-3-Reno Aces (18) GVC, NYC-9TH-4D-Tavern on the Green (8) GVC (Phone), NYC-9TH-7D208-Open Run (14) GVC ([map](#))

Video call

Who

- [REDACTED] - organizer
- [REDACTED] creator
- [REDACTED]

-
- | Author | Number of Papers |
|------------------|------------------|
| Brad Bender | 1 |
| Jonathan Bellack | 1 |
| Aparna Pappu | 1 |

• [REDACTED] - optional

- [REDACTED] - optional
- [REDACTED] - optional

Max Lin

--

Eisar

"Interested in opportunities in Display Ads? : [REDACTED]"

--

Eisar

"Interested in opportunities in Display Ads? : [REDACTED]"

--

Eisar

"Interested in opportunities in Display Ads? : [REDACTED]"

--

Eisar

"Interested in opportunities in Display Ads? : [REDACTED]"

--

-- Jonathan Bellack / [REDACTED]
Director, Product Management / Publisher Ad Platforms

--

Eisar

"Interested in opportunities in Display Ads? : [REDACTED]"

[REDACTED]